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Best Practices in Performing DSA Legacy Reviews

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October 2, 2014

2014 Energy Facility Contractors Group Safety Analysis
Workshop
Pleasanton, CA, United States
October 10, 2014 through October 17, 2014

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Best Practices in Performing DSA Legacy Reviews

2014 EFCOG Safety Analysis Workshop
October 2014

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LLNL-PROC-661838

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. Lawrence Livermore National Security, LLC



Brief Description of Best Practice

- Toolbox of best practices developed for reviews of legacy issues that may be present in Documented Safety Analyses (DSAs)
- Found to efficiently and effectively review DSAs to improve quality and ensure compliant implementation with 10 CFR 830
- Variety of techniques and provides a toolbox for reviewers
 - Comprehensive DSA legacy reviews on a per-facility basis
 - Broad review example
 - Narrow/focused example
 - Focused/targeted reviews on a topical, cross-facility basis (e.g., SACs)
 - Interface with other processes (e.g., TSR implementation, safety basis development procedures, training)

Why Best Practice Was Used

- DOE sites need to monitor DSA quality and compliance to ensure a 10 CFR 830 Compliant DSA development process
- Legacy issues can be a result of initial rush to develop compliant DSAs after 10 CFR 830, associated learning curve, maturation of the DSA development process, better understanding of issues over time, and/or facility-specific situations
 - Examples of legacy issues may include
 - legacy assumptions,
 - safety basis parameters or conditions,
 - issues with control flow down,
 - inconsistent controls
- Toolbox provides a variety of reviews and assessment methodologies ranging from comprehensive assessments on a per-facility basis to focused/targeted reviews on a topical, cross-facility basis

Why Best Practice Was Used (cont'd)

- Assess trends, develops lessons learned, and provide feedback
- Reviews interface with other processes (e.g., TSR implementation) and may result in the need to revise:
 - Safety basis development procedures
 - Training
 - Lessons learned.
- This best practice aids in assessing, verifying and documenting that DSAs reviewed for legacy issues and quality improvements
 1. Support the reviews, including providing clear guidance as to expectations
 2. Conduct the reviews appropriately
 3. Provide recommendations to revise DSAs as appropriate
 4. Provide feedback of lessons learned to safety analysts and facility management

Benefits of Best Practice

- DSA Legacy Reviews:
 - Help ensure Compliance
 - Proactively find DSA legacy issues
 - Highlight opportunities for improvement
- Streamline the review process, increasing its efficiency, effectiveness, and timeliness
- Improve consistency across facilities on common topics and minimize DSA legacy issues
- Opportunities exist to review DSAs for legacy issues that some contractors may not be aware of, and thus may be vulnerable for DSAs with quality or implementation issues

Benefits of Best Practice (cont'd)

- Potential improvements include:
 - Improved consistency across facilities on common topics
 - Minimized legacy issues
 - Optimized DSA revision processes
 - Developing revised safety basis procedures
 - Developing and revising safety basis training
 - Management/DSA Interfaces

Comprehensive DSA Legacy Reviews on a per-facility basis

- Comprehensive reviews of a specific DSA are a best practice to find DSA legacy issues, e.g.,
 - Legacy assumptions
 - Safety basis parameters or conditions associated with references (e.g., safety basis calculations)
 - Flow down of controls
 - Other topics
- Lessons learned from several DSA Legacy Reviews highlight that advanced selection of calculations proved beneficial
 - First find all calculations referenced in the DSA
 - Track down the actual calculations
 - Review the calculations for relevance and priority

Focused/targeted reviews on a topical, cross-facility basis (e.g., SACs)

- Comprehensive reviews of a specific topic across DSAs are also a best practice to find DSA legacy issues
- Reviews of specific topical areas when
 - Issues repeatedly arise in an topical area
 - When a specific topical area has not recently received a fresh look
- Topics may include
 - Chapters (e.g., DSA safety management program chapters)
 - Broad topics (e.g., site natural phenomena hazards)
 - Specific topics (e.g., Specific Administrative Controls (SACs))

Comprehensive Per Facility Review: Methodology, Lines of Inquiry, & Criteria

- Facility walk down, document review and interviews
 - Report's detailed attachments cover major areas of review
- 1. Do the references reviewed correctly reflect [DOE site contractor] requirements and are consistent with the DSA?
 - Do the Safety Basis Division (SBD) calculations referenced in the DSA contain appropriate input assumptions, calculations and reach consistent conclusions accordingly?
 - Do other references reviewed contain appropriate input assumptions and conclusions consistent with the DSA?

Comprehensive Per Facility Review: Methodology...(cont'd)

2. Does the DSA review indicate satisfactory internal consistency?
 - Fresh look - Review conducted conceptually consistent with standard precepts of an annual update review, with exception that this review does not focus on changes only.
 - Examine hazard identification, hazard evaluation, accident analysis, and control flow down through Chapters 4 and 5 into the TSR document
 - Focus on consistency in control derivation and flow down, explanation of bases thereof, and potential presence of unacknowledged assumptions
 - Are hazards identified consistent with hazard evaluation and accident analysis?
 - Do the controls flow down consistently within DSA from hazard evaluation and accident analysis to TSRs?
 - Are key assumptions unsupported or left unaddressed?

Comprehensive Per Facility Review: Methodology...(cont'd)

1. At conclusion of reference review, reviewers identify:
 - Any inconsistencies with DSA
 - Any input assumptions not properly reflected in DSA
 - Any calculations that should be revised
2. At conclusion of DSA review, reviewers identify:
 - Any inconsistencies in control flow down
 - Any unsupported or unaddressed assumptions
 - Any DSA revisions required

Comprehensive Per Facility Review: Methodology...(cont'd)

- Detailed review steps
 - Verify any software used in calculations is on [DOE site contractor] Safety Software List
 - Determine which calculations still relevant to analysis
 - Determine if older calculations should be upgraded into new calculations
 - Verify that calculations still relevant to analysis meet requirements of [local] procedure *Safety Basis Calculations*
 - Verify computational results of calculations still relevant to the analysis.
 - Verify consistency with DSA text and conclusions
 - Evaluate calculations to determine if any key assumptions were unacknowledged in DSA analysis and/or TSR control flow down

Comprehensive Per Facility Review: Methodology...(cont'd)

- Team Leader
 - Institutional Safety Basis Division Leader or Safety Basis Deputy Division Leader
- Team Members
 - Safety Basis Division Institutional Reviewer of [facility]
 - Facility [or Organization] Safety Basis Manager
 - Their staff
- Ensure that Assessment Team has skills, knowledge, and abilities (SKAs) necessary to evaluate compliance to specified requirements

Focused/targeted reviews on a topical, cross-facility basis: Methodology, Lines of Inquiry, & Criteria

- Example topic: SACs
- Facility walk down, document review and interviews
 - Report's detailed attachments cover major areas of review
- 1. Are safety functions for the TSRs' SACs complete and correct from Operations perspective?
 - Do safety functions provide a top level statement that expresses objective of SAC?
 - Do safety functions make clear what is being controlled?
 - Does safety function appropriately identify a specific accident or general rationale for which SAC is defined?

Focused/targeted reviews on a topical, cross-facility basis: Methodology... (cont'd)

2. Are functional requirements for TSRs' SACs complete and correct from Operations perspective?
 - Do functional requirements state what requirements are specifically necessary, if any, to allow function to be performed?
 - Do functional requirements provided, if any, appear to be sufficient for implementation?
3. Are safety functions and functional requirements appropriately distinct, or is additional clarification necessary from Operations Perspective?

Focused/targeted reviews on a topical, cross-facility basis: Methodology... (cont'd)

- Team Leader
 - Institutional Safety Basis Division Leader or Safety Basis Deputy Division Leader
- Team Members
 - Safety Basis Division Institutional Reviewer of [facility]
 - Facility Safety Basis Manager
 - Facilities Operations Manager
 - Facility Program Assurance Manager
 - Facility Operations personnel
 - Their staff
- Ensure that Assessment Team has skills, knowledge, and abilities (SKAs) necessary to evaluate compliance to specified requirements

After the Review, the Big Picture and the Details Make Sense!



